

No. 624,191.

Patented May 2, 1899.

S. K. DENNIS.

APPARATUS FOR FOUNDING CORD HOLDERS, &c., CONSISTING OF MALLEABLE OR ANNEALED IRON HAVING CHILLED PORTIONS.

(Application filed Sept. 22, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 2.

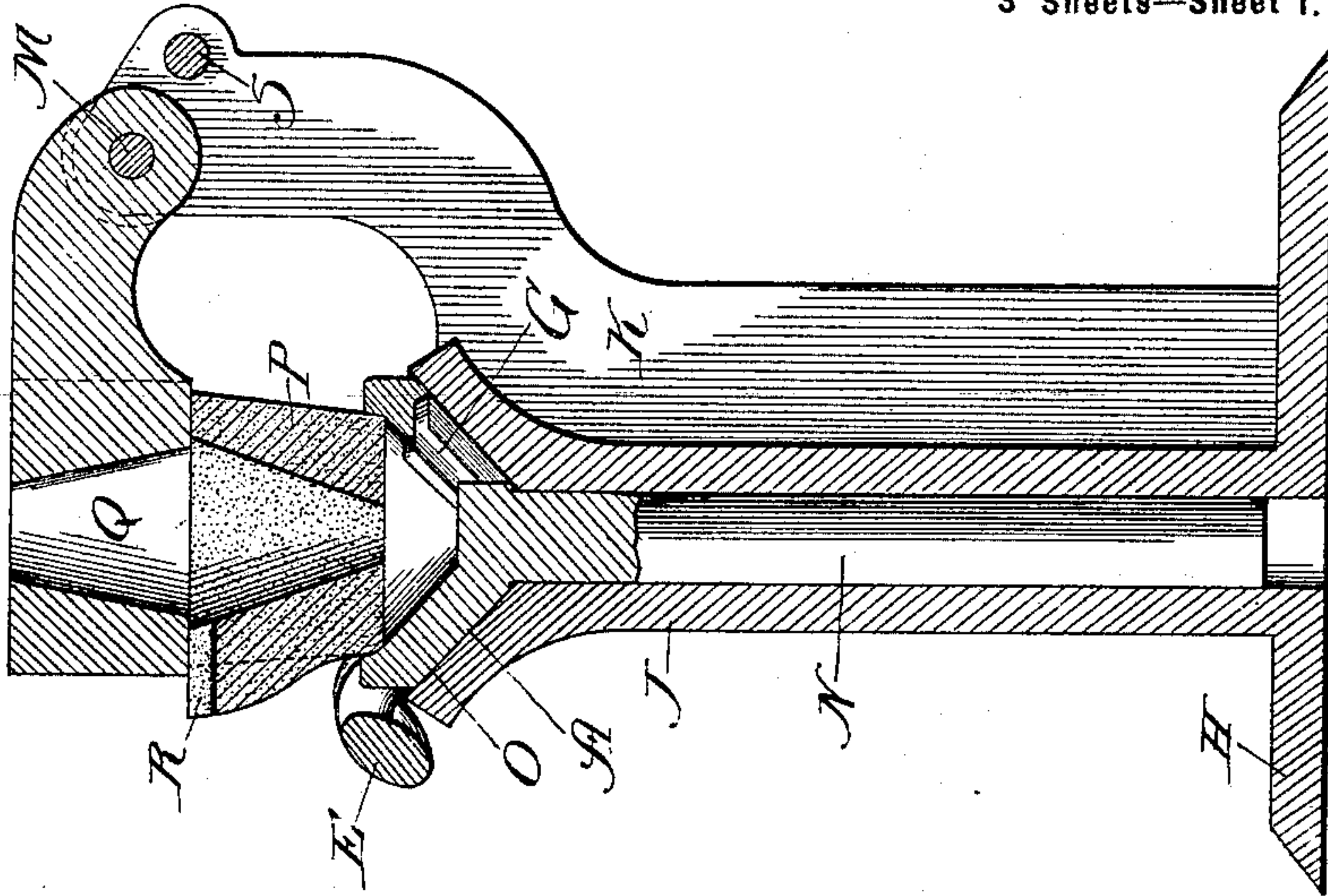
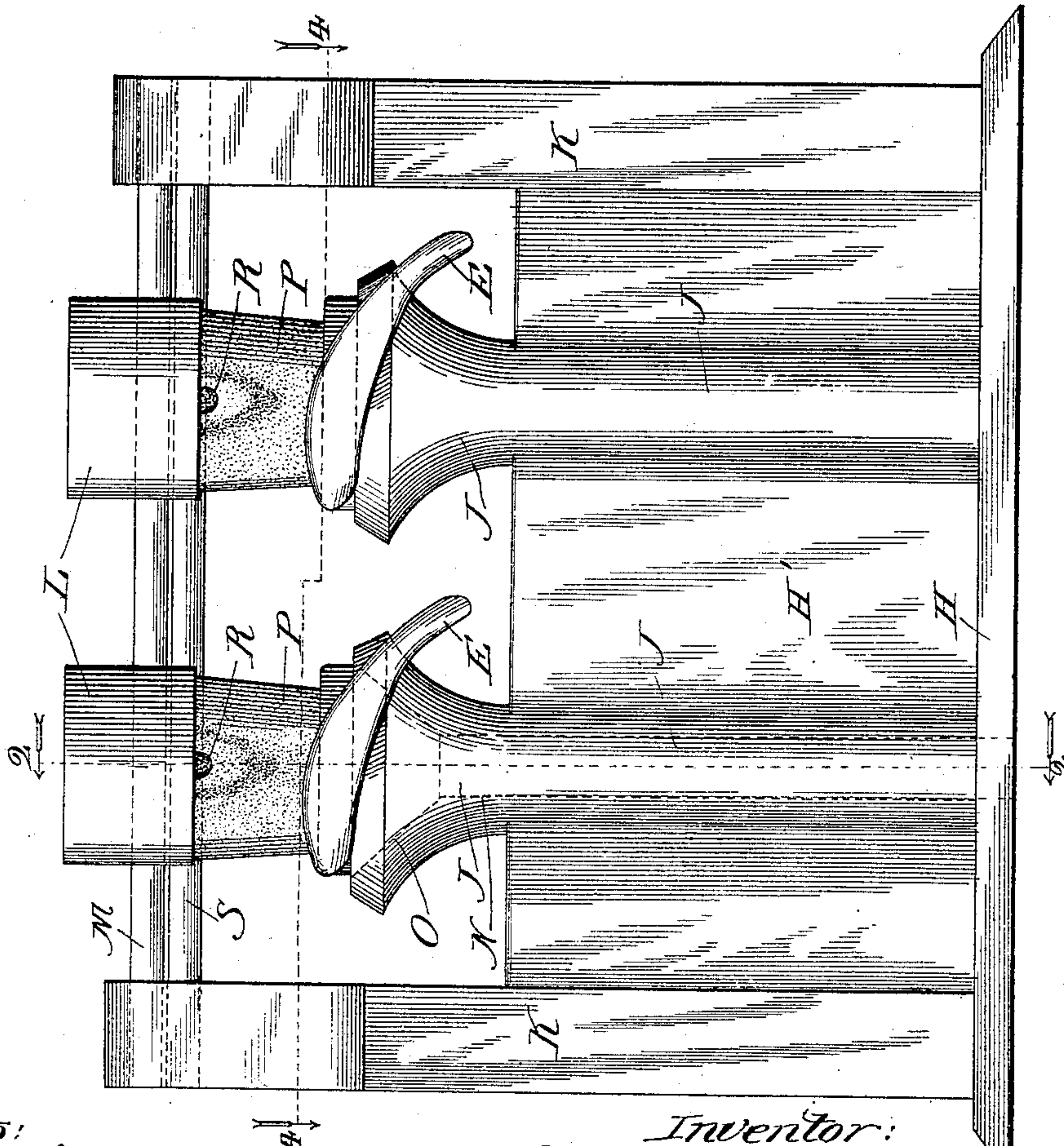


Fig. 1.



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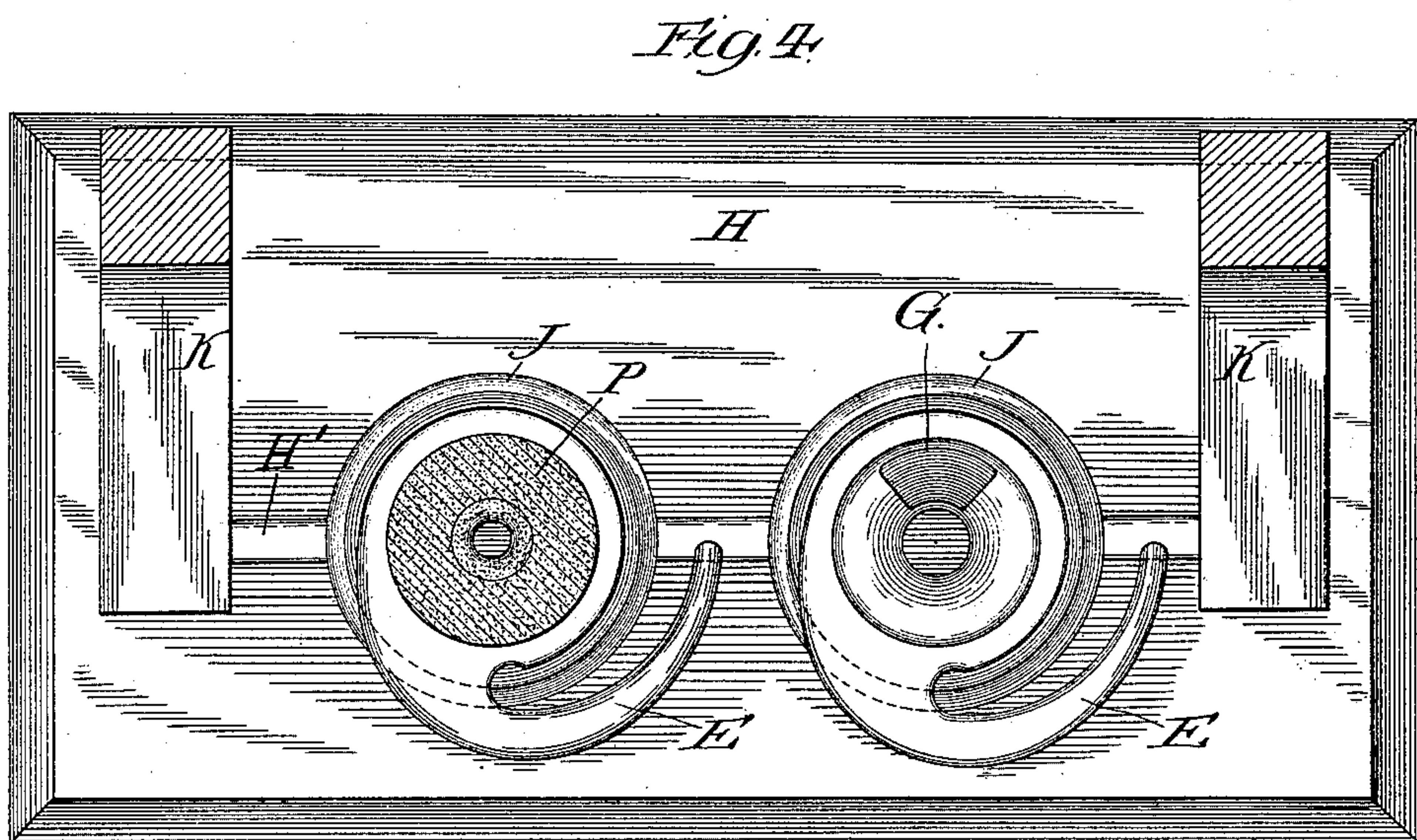
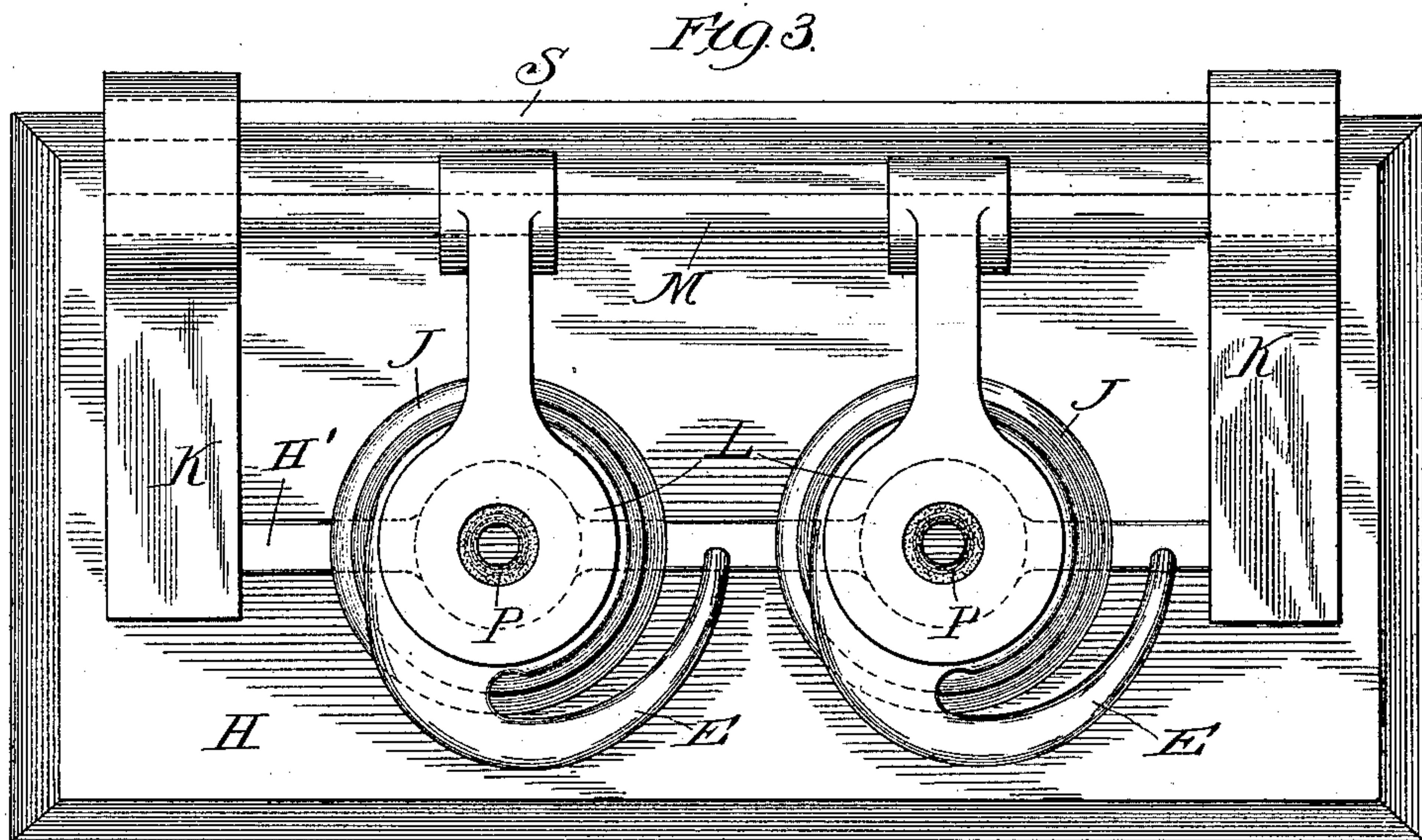
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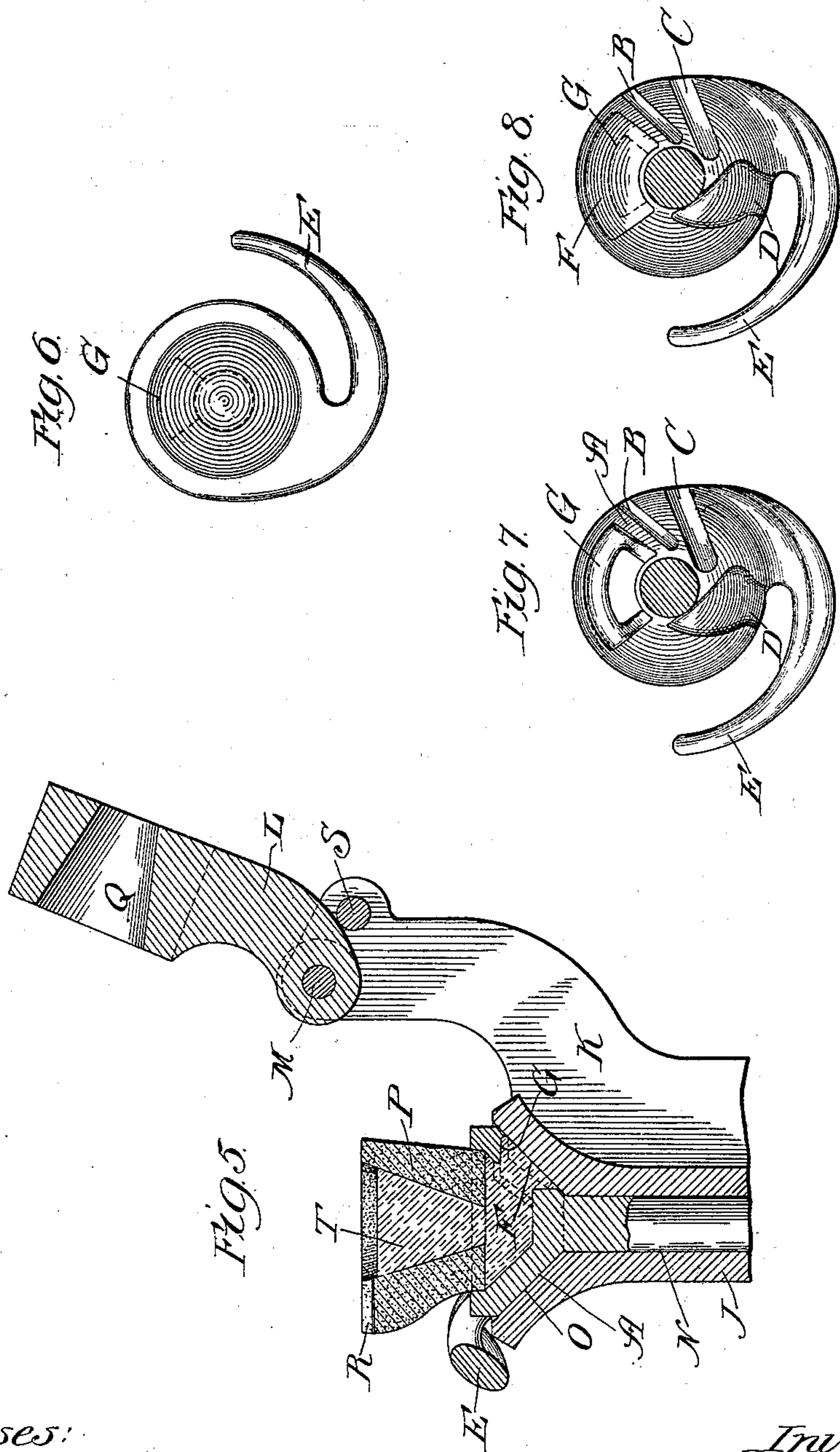
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# UNITED STATES PATENT OFFICE.

SAMUEL K. DENNIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PLANO MANUFACTURING COMPANY, OF SAME PLACE.

APPARATUS FOR FOUNDED CORD-HOLDERS, &c., CONSISTING OF MALLEABLE OR ANNEALED IRON HAVING CHILLED PORTIONS.

SPECIFICATION forming part of Letters Patent No. 624,191, dated May 2, 1899.

Original application filed March 26, 1898, Serial No. 675,233. Divided and this application filed September 22, 1898. Serial No. 691,593. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL K. DENNIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Apparatus for Founding Cord-Holders or Similar Articles Consisting of Malleable or Annealed Iron and Having Chilled Portions, of which the following is a specification.

My invention relates to the apparatus for founding a new and improved cord-holder for harvesting-machines or some similar article, the principal portion of which consists of malleable or annealed iron, but which has at one or more points especially subjected to wear a chilled portion or surface formed therein. This cord-holder is also described, shown, and claimed in my application, Serial No. 675,233, filed March 26, 1898, of which the present application is a division.

Referring to the drawings which I have employed in illustrating my improved apparatus, and incidentally the article, in which the same letters of reference are used to designate identical parts in all the views, Figure 1 is a front elevation of the apparatus in position for carrying out the process. Fig. 2 is a section of the apparatus on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the apparatus shown in Fig. 1. Fig. 4 is a plan view of the same apparatus in section on the line 4 4 of Fig. 1. Fig. 5 is a section similar to Fig. 2, but taken after the casting has been completed. Fig. 6 is an inverted plan view of a cord-holder for a grain-binding machine, for the construction of which my apparatus is especially devised. Fig. 7 is a plan view of the same article before the chilled portion has been cast into position, and Fig. 8 is a similar view of the chilled article.

Referring first to the cord-holder, (best shown in Figs. 2, 6, and 8,) A represents the conical upper surface of the bearing portion of the cord-holder, which has therein the channels B, C, and D, which permit the escape of the ends of the cord. The hook E is formed integral with this portion and has certain functions in the operation of the cord-holder which need not be here considered. In the operation of the cord-holder that portion of the bearing-surface to which the letter F is applied is subjected to a great deal of wear

from the movement of the cord, and in the operation of the device if this portion is constructed of malleable or annealed iron, as is the body portion of the holder in order to secure the necessary tensile strength, this portion soon becomes worn away, so much so as to permit the cord to slip between it and its cooperating clamp, (not shown,) and thus destroy the efficiency of the clamping action of the holder, which action is absolutely essential to the successful operation of the machine. In order to secure the necessary hardness for this surface F in the malleable iron, the body of the holder is cast and annealed in the ordinary manner, leaving therein the cavity G, where the chilled surface F is to come, and this cavity G leads through to the under side of the holder, which I preferably make of the hollow conical shape shown in Fig. 2.

After the malleable portion has been founded in the customary manner I place the cord-holders in the apparatus shown in Figs. 1 to 5, which apparatus forms the subject-matter of the present invention. This apparatus consists of the base H, on which are formed the vertically-disposed holders J and the standards K, which may be united by the vertical web H'. The standards K have their upper portion set off from the main portion, as best shown in Fig. 2, and have connecting them the rod M, upon which are pivotally mounted the caps L for the purpose more fully described hereinafter. The caps L might be rigidly connected to the rod M, which in turn might be pivotally mounted in the standards K; but this construction would compel the caps L to be moved simultaneously, which construction is open to some objections as compared with the one shown. The holders J will necessarily be shaped so as to conform to the shape of the articles in which the chilled portion is to be placed, and in the present instance they have the vertical bores N, in which the stem portions of the cord-holders fit, and the flaring cone-shaped portions O, which correspond exactly in shape to the conical bearing portion A of the cord-holders. The case P, which is of the shape clearly shown in Figs. 1 and 2 and which is composed of sand, flour, and molasses in the customary manner, is placed in the position shown in Fig. 2 and the cap L is swung down



to hold the case P in position and by means of the orifice Q therein to serve as a guide in pouring the molten metal in the mold thus formed by the holder J, the malleable portion of the article, and the case P. The case P is provided with an overflow-outlet R. The parts now being in position, as shown in Figs. 1, 2, and 3, the molten metal is poured through the aperture Q and flows into and fills the mold formed by the parts before mentioned. The surface F is formed by the conical surface O of the holder J, and as it cools very rapidly under the action of the chill this surface becomes extremely hard, as in the well-known operation of casting chilled articles. The malleable portion of the cord-holder, comprising the interior of the depression G and the conical hollow end, also serves to chill the hot metal coming in contact therewith, and as a result the complete casting is extremely hard. After it is completely cooled the cap L is swung back, as shown in Fig. 5, the bar S being conveniently provided between the standards K to hold these caps in position when they are swung back, and the case P is broken away, and the sprue T is cut off flush with the surface of the casting, leaving the chilled casting with its under surface as shown in Fig. 6.

By the use of my apparatus I am enabled to form my improved cord-holder or similar article by the method previously described. It will be understood that I do not limit myself to apparatus for founding cord-holders alone constructed in this manner, but that I desire to be protected in the use of any apparatus for forming any article in which a chilled portion is formed in a body of malleable or annealed iron by the method herein described. It is apparent that the method can be applied to any shape or kind of article, the only necessity being that the holder or other apparatus be so modified as to suitably receive and hold the malleable portion and to present in its outline a chill portion against which the casting to be chilled shall flow, the malleable portion and the chill-holder thus cooperating to act as a mold for the casting.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for casting a chilled portion into a body of malleable or annealed metal, the body of metal, and the holder supporting said body, said holder having a surface acting as a chill, with an apertured case P shaped to fit said body and cover one end of the cavity for the chilled portion, and a cap located to hold the case in position, substantially as described.

2. In an apparatus for casting a chilled portion into a body of malleable or annealed metal, the body of metal, and the holder supporting the body, said holder having a surface acting as a chill, with an apertured case P to fit into such body and to cover the upper end of the cavity for the chilled portion, and a swinging cap having an aperture

through which the molten metal is poured to enter the case, which is held in position by said cap, substantially as described.

3. In an apparatus for casting chilled portions into bodies of malleable or annealed metal, the base H carrying a plurality of holders shaped to receive the bodies, with a corresponding number of apertured cases P shaped to fit into said bodies and cover the cavities for the chilled portions, a plurality of caps located to hold the cases in position, and a common rod upon which said caps are independently pivoted.

4. In an apparatus for casting a chilled portion into a body of malleable or annealed metal, the holder shaped to receive the body, with an apertured case P having its lower portion shaped to fit into said body and cover the cavity for the chilled portion, and having the overflow-channel R in its upper side, and a cap L to hold the case, and having an opening therein through which the metal is poured into the cavity.

5. In an apparatus of the class described, a mold comprising the article into which the hardened portion is to be cast, with the holder therefor, and the apertured, frangible case P having its bottom fitting into a cavity in the article into which the hardened portion is to be cast and with which article it cooperates to form the mold, and with the flaring aperture therethrough and the overflow-channel R in its upper side, substantially as and for the purpose described.

6. In an apparatus of the class described, the holder J having its interior surface shaped so as to securely contain the malleable article and containing the chilled surface shaped substantially as and for the purpose described, with the apertured case P, and a cap L to hold the malleable article and the case P during the operation of casting the chilled portion.

7. In an apparatus of the class described, the combination of the holders J shaped and constructed substantially as and for the purposes described, with the apertured case P, and the caps L pivotally mounted in relation to the holders to hold the cases P on the malleable articles, and the rod S mounted in the rear of and below the pivots of said caps with which it cooperates, substantially as and for the purpose described.

8. In a device of the class described, the combination of the base carrying the vertical holder J having the tubular cavity therein terminating in the flaring cup-shaped portion O, to hold the cord-holder having an aperture therein, with an apertured case P, and the pivoted arm L having the aperture Q in its end, and serving to hold the case P over the aperture of the cord-holder, substantially as described.

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