

No. 674,061.

Patented May 14, 1901.

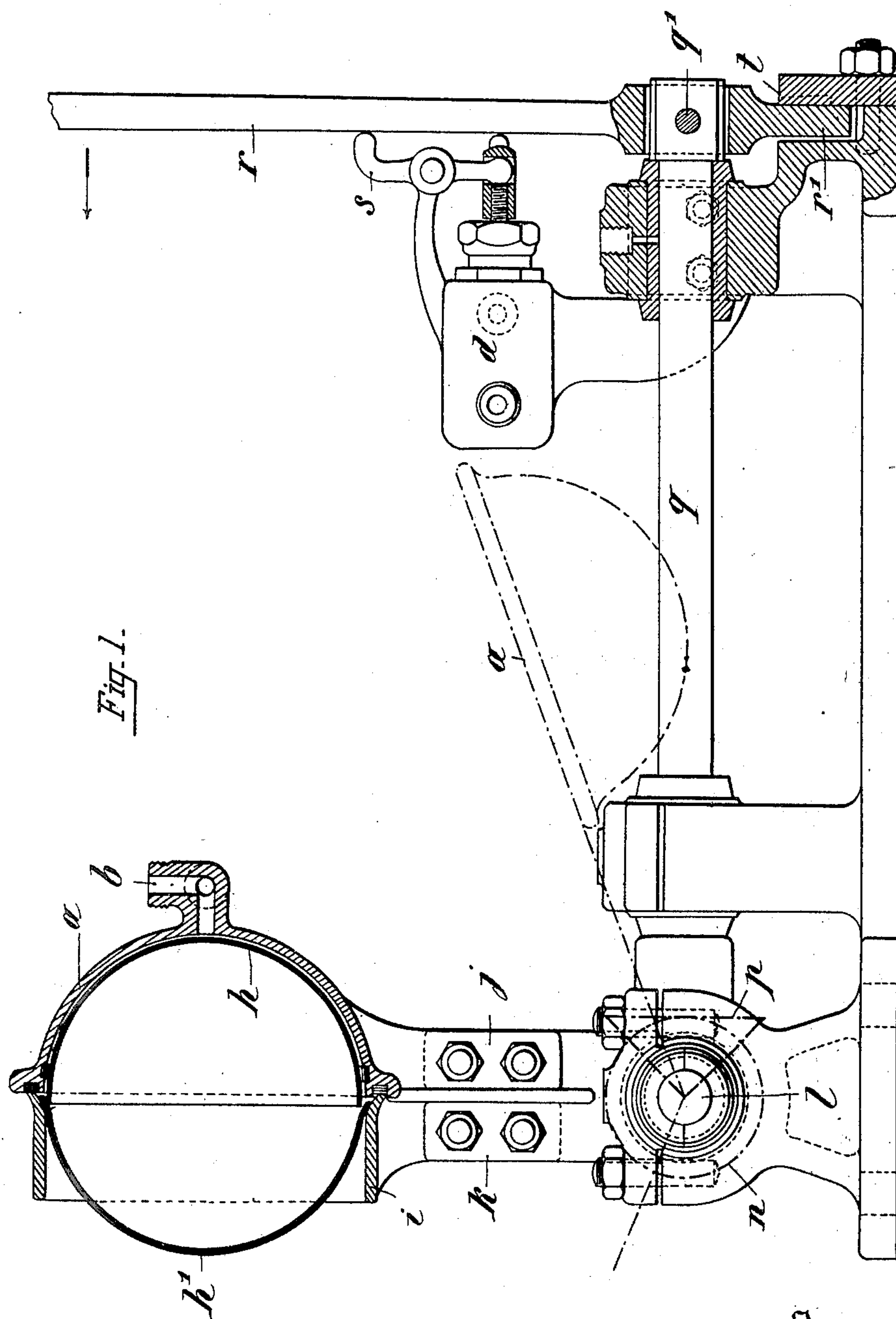
H. HAMET.

APPARATUS FOR UNITING PARTS OF HOLLOW INDIA RUBBER GOODS.

(Application filed May 24, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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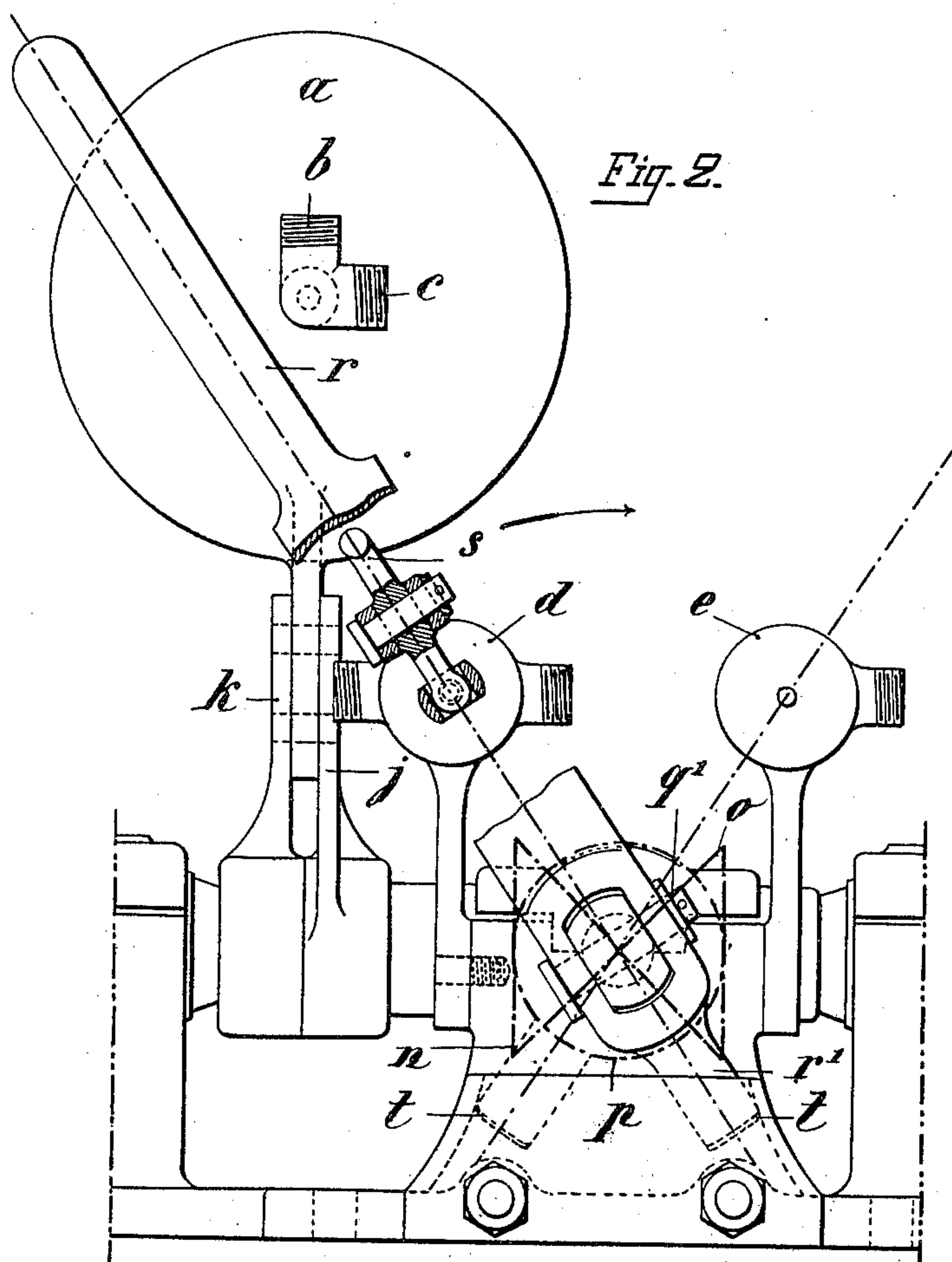
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Witnesses

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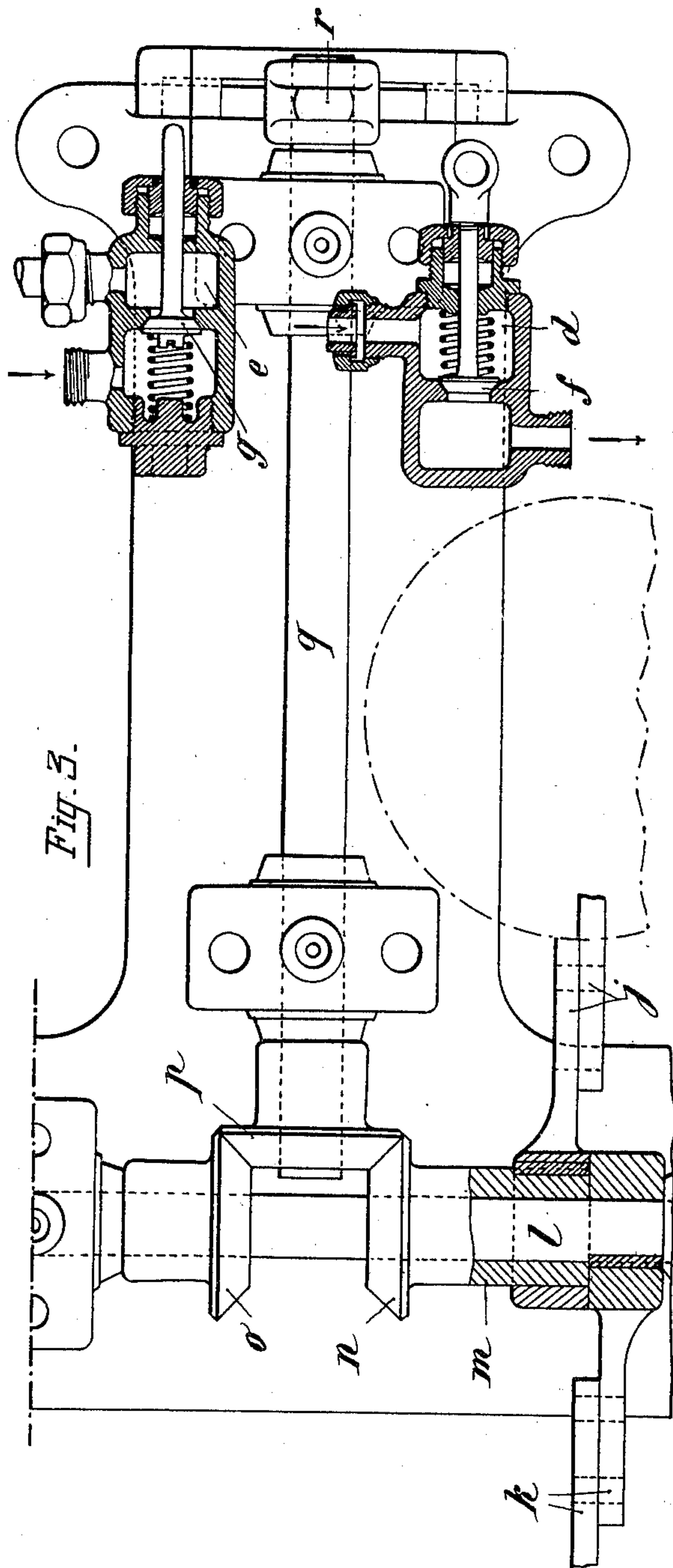
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

HENRI HAMET, OF PARIS, FRANCE.

APPARATUS FOR UNITING PARTS OF HOLLOW INDIA-RUBBER GOODS.

SPECIFICATION forming part of Letters Patent No. 674,061, dated May 14, 1901.

Application filed May 24, 1900. Serial No. 17,817. (No model.)

To all whom it may concern:

Be it known that I, HENRI HAMET, engineer, of 34 Rue Piat, in the city of Paris, Republic of France, have invented Improvements in
5 Apparatus for Uniting the Parts of Hollow India-Rubber Goods, of which the following is a full, clear, and exact description.

This invention relates to a machine for mechanically uniting by means of a suitable cement the two parts of hollow articles of caoutchouc.

The machine essentially comprises two holders or supports respectively adapted to receive the two parts of the article, and one or
15 both of which may be put in communication with a vacuum-pump in order that the two parts of the article may be retained in their holders by atmospheric pressure. The two holders are adapted to close together, so as to
20 bring into contact, with or without overlapping, the edges of the two parts to be united, the said edges having preferably been previously coated with caoutchouc-cement. The union of the two parts is insured by means of
25 compressed air applied to press either upon the interior or exterior of the article, so as to strongly press together the cemented edges, or the article may be forced through one of the holders, which corresponds in form to but
30 is slightly smaller internally than the article, so that the outer edge of the one half of the article will be thereby forcibly pressed into contact with the inner edge of the other half.

I will now describe a machine acting in the
35 above way for cementing together the two hemispherical parts of a rubber ball previously formed by pressing or molding in dies. In this machine one of the holders is a hemispherical cup adapted to receive the one half
40 of the ball and to be connected at will with a vacuum-pump or with a reservoir of compressed air, while the other holder is a ring or die adapted to receive the other half of the ball, its internal diameter being slightly
45 smaller than the external diameter of the ball. The one half of the ball having been placed in the cup-holder and the connection opened with the vacuum-pump, the said half is retained in its holder by atmospheric pressure.
50 The ring-holder in which the other half of the ball is held is then pressed against the cup,

so as to cause the edges of the two halves of the ball (which have previously been coated with rubber-cement) to slightly overlap each other, the edge of the half which is held in
55 the ring being outermost. The cup-holder is then placed in communication with the reservoir of compressed air, whereby the two halves of the ball are forced through the ring-holder, which being of slightly-smaller diameter presses together the cemented edges, and
60 thus unites the two parts of the ball around its whole circumference.

In the accompanying drawings, Figure 1 represents an elevation, Fig. 2 an end view,
65 and Fig. 3 a plan, of the machine.

In all figures of the drawings the pipe connections have been omitted in order to avoid obscuring other portions of the machine.

The same letters of reference denote like
70 parts in all the figures.

The machine comprises a holder *a*, which in the present example is made in the form of a hemispherical cup; but it would be made to suit the form of the article to be cemented.
75 The holder *a* has two pipe-nozzles *b c*, respectively connected to two chambers *d e* through intermediate pipes. (Not shown.) The chambers *d e* may be provided, respectively, with valves *f g*, the one, *d*, controlling com-
80 munication with a vacuum-pump and the other, *e*, from a compressed-air reservoir. The holder *a* is designed to receive the hemispherical half *h* of the ball, the other half *h'* being carried in a ring *i* of slightly-smaller
85 internal diameter than the external diameter of the rubber ball, of slightly splayed form, as shown in Fig. 1, to admit of the splayed edge of the half *h'* overlapping the edge of the half *h*. The cup *a* and ring *i* are mounted,
90 respectively, upon arms *j k*, keyed the one upon a shaft *l* and the other upon a sleeve *m*, said shaft and sleeve being geared by bevel-pinions *n o* with an intermediate bevel-
95 pinion *p*, keyed on a rock-shaft *q*, upon which is mounted the hand-operated lever *r*, serving not only to turn the rock-shaft *q* for the purpose of closing together or separating the holders *a i*, but also to open the vacuum-
100 valve *f* or compressed-air valve *g*. For the latter purpose the lever *r* is mounted to oscillate upon a cross-pin *q'* in the end of shaft *q*

in order that when the shaft *q* is rocked by the lever to one or other of its extreme positions the lever may be in a position to act on and open the corresponding valve *f* or *g*. The lever *r* acts on valve *g* directly and on valve *f* through a small intermediate lever *s*. The hand-operated lever *r* has a tailpiece *r'*, which works in a guide provided with recesses *t*, and permitting of the lever *r* being oscillated by hand about pin *q'* to act upon valves *f* or *g* only when the lever is in the one or other of its extreme positions.

The operation of the machine is as follows: The hand-lever *r* being in the position shown in Fig. 2, the two arms *j k* are separated, as indicated by broken lines in Fig. 1. The two halves *h h'* of the ball, previously cemented upon their outer and inner overlapping edges, are placed in the holders *a* and *i*. The half *h* having been placed in the holder *a*, the lever *r* is then swung by hand upon its axis *q'* in the direction of the arrow in Fig. 1, so as to open valve *f* and put the holder *a* in communication with the vacuum-pump, and thus cause the part *h* to be held by atmospheric pressure in the holder *a*. The lever *r* is then returned by hand, as shown in Fig. 1, so as to close valve *f*, and it is then moved by hand in the direction of the arrow in Fig. 2, this angular movement of the lever *r* having for effect to turn shaft *l* and sleeve *m* in opposite directions, this causing ring *i* to be firmly pressed against the holder *a* and the edge of the part *h* to enter slightly within or be overlapped by the edge of part *h'*, as shown in Fig. 1. The lever *r* is then again rocked upon its axis *q'* to open valve *g* and admit compressed air to pass through the chamber *e* and the intermediate pipe connections (not shown) to the holder *a*, and compressed air thus conducted to the rear face of the article contained in the holder *a* forces the india-rubber article through the ring *i*, which being slightly less in internal diameter than the exterior diameter of cap *h'* causes a rubbing action which has for effect to press the edge of part *h'* into contact with that of part *h*. The overlapping edges having been previously coated with rubber-cement are thus firmly united. The completed article is thus ejected from the machine, after which the lever *r* is moved back in order to again close the compressed-air valve, and then returned to its original position in order to separate the holders in readiness to receive other prepared parts *h h'* to be united. The machine thus enables the parts to be speedily and completely united.

If both parts *h h'* of the article require to be firmly held during the operation, the machine may have a pair of holders, such as *a*, both connected with a vacuum-pump and mold in a similar manner to the holder *a*, above described, a ring die *i* being interposed between the two cup-shaped holders.

At the commencement of the operation the

second cup-shaped holder is close against the ring, the part *h'* of the article being held in both; but the cup-holder is moved away from the ring on the admission of compressed air to the other holder in order to allow of the completed article being ejected through the ring.

Rubber articles of any form or dimensions may be cemented in this machine, the details of arrangement of the parts being modified to suit requirements.

The union of the two parts may also be effected by the admission of compressed air within the article or by causing compressed air to exert pressure upon the exterior of the article.

I claim—

1. A machine for uniting a plurality of component parts of an article of rubber, said machine comprising holders for the parts to be united, means for moving said holders with relation to each other so as to bring the separate parts into the position they are to assume in the finished article, a vacuum-pump adapted to be placed in communication with one of said holders in order that the part contained therein may be held in place by atmospheric pressure and means for effecting a union of the previously-cemented parts of the article by a compression of air thereon.

2. A machine for uniting a plurality of component parts of an article of rubber, said machine comprising holders for parts to be united, one of said holders being open from side to side and smaller in diameter than the part of the article held therein, means for moving said holders with relation to each other so as to bring the separate parts of the article into overlapping engagement and means connected to one of said holders for effecting an air-pressure upon the article to force it through the open holder and to unite the previously-cemented parts of the article.

3. In a machine for uniting a plurality of component parts of an article of rubber, said machine comprising holders for the parts to be united, one of said holders being open from side to side and smaller in diameter than part of the article held therein, means for moving said holders so as to bring the separate parts of the article into overlapping engagement, a vacuum-pump adapted to be placed in communication with one of said holders in order that the part contained therein may be held in place by atmospheric pressure and means connected to one of said holders for effecting an air-pressure upon the article to force it through the open holder and to unite the previously-cemented parts of the article.

4. In a machine of the character described, the combination of a plurality of holders for holding the separate parts of a rubber article, means for effecting a movement of the holders with relation to each other, a vacuum-pump valve which controls the communica-

tion between said vacuum-pump and one of
the holders, an air compressor and valve for
controlling the communication between said
air-compressor and one of the holders and a
5 single lever for controlling the movement of
said holders and valves.

The foregoing specification of my "Im-

provements in apparatus for uniting the parts
of hollow india-rubber goods" signed by me
this 5th day of May, 1900.

HENRI HAMET.

Witnesses:

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MAURICE H. PIGNET.