

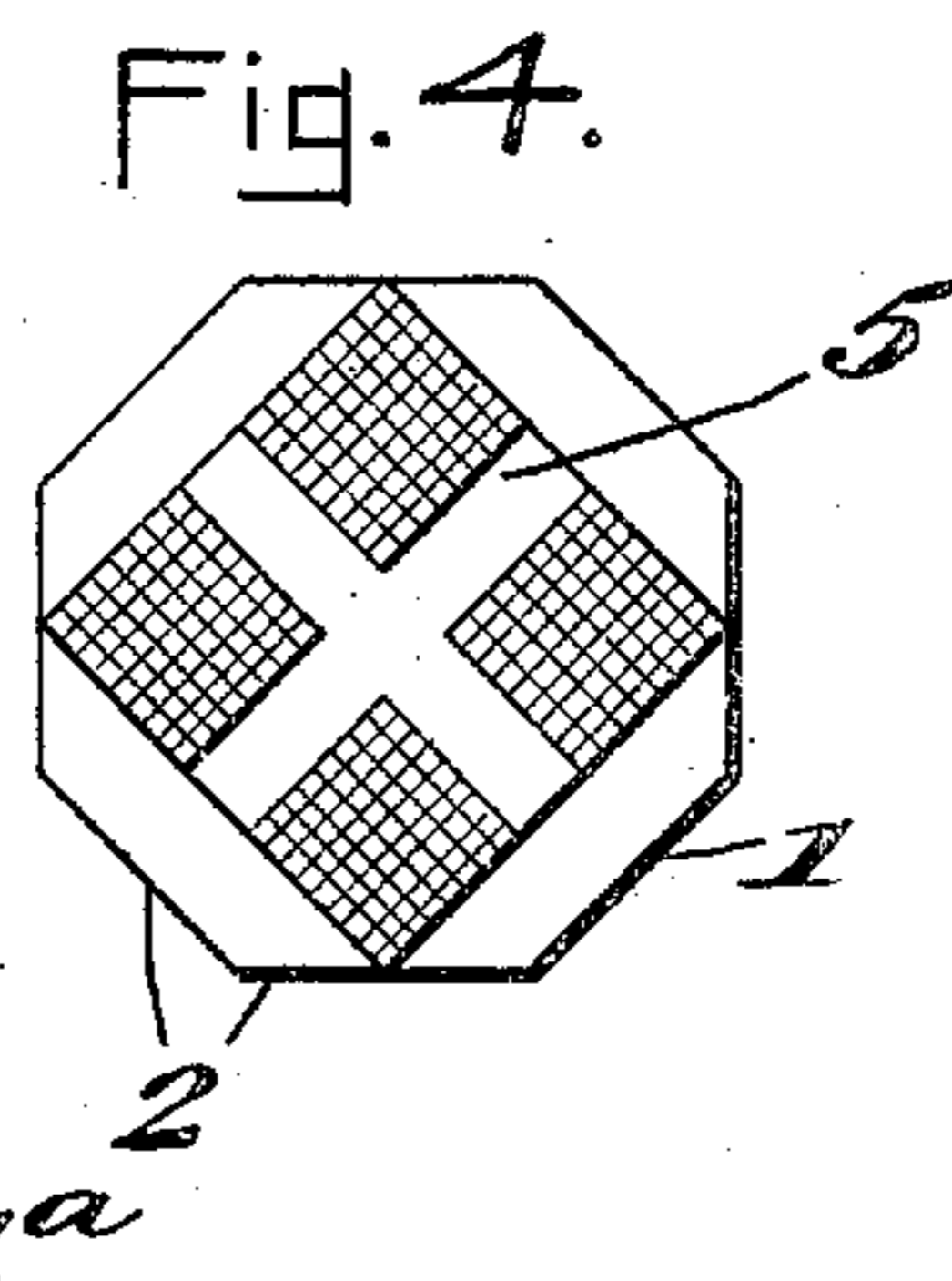
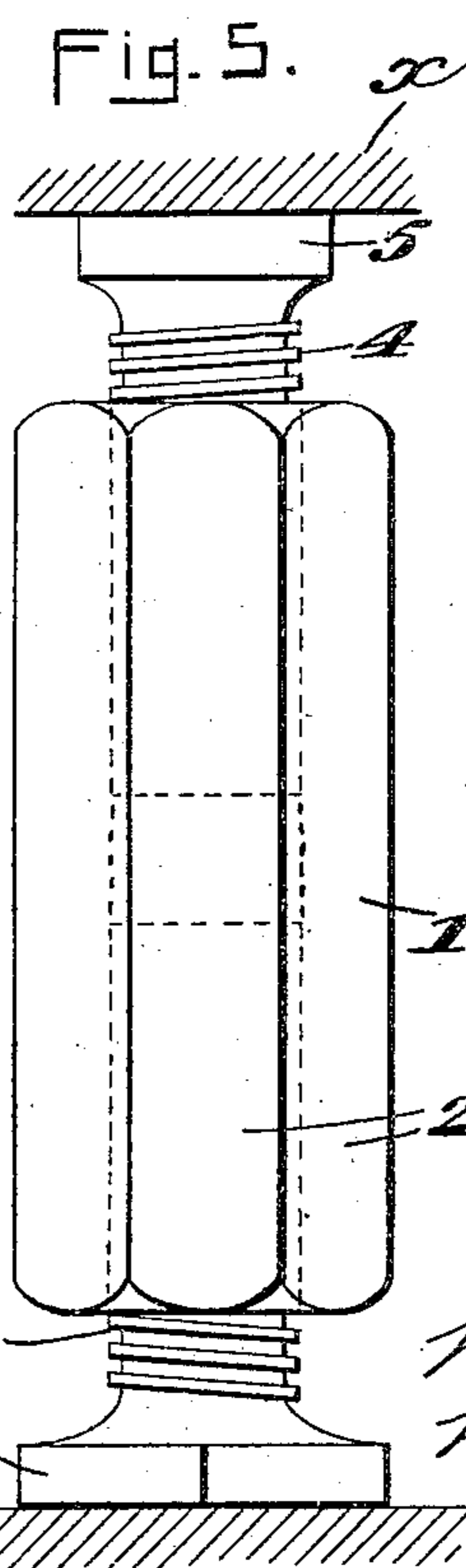
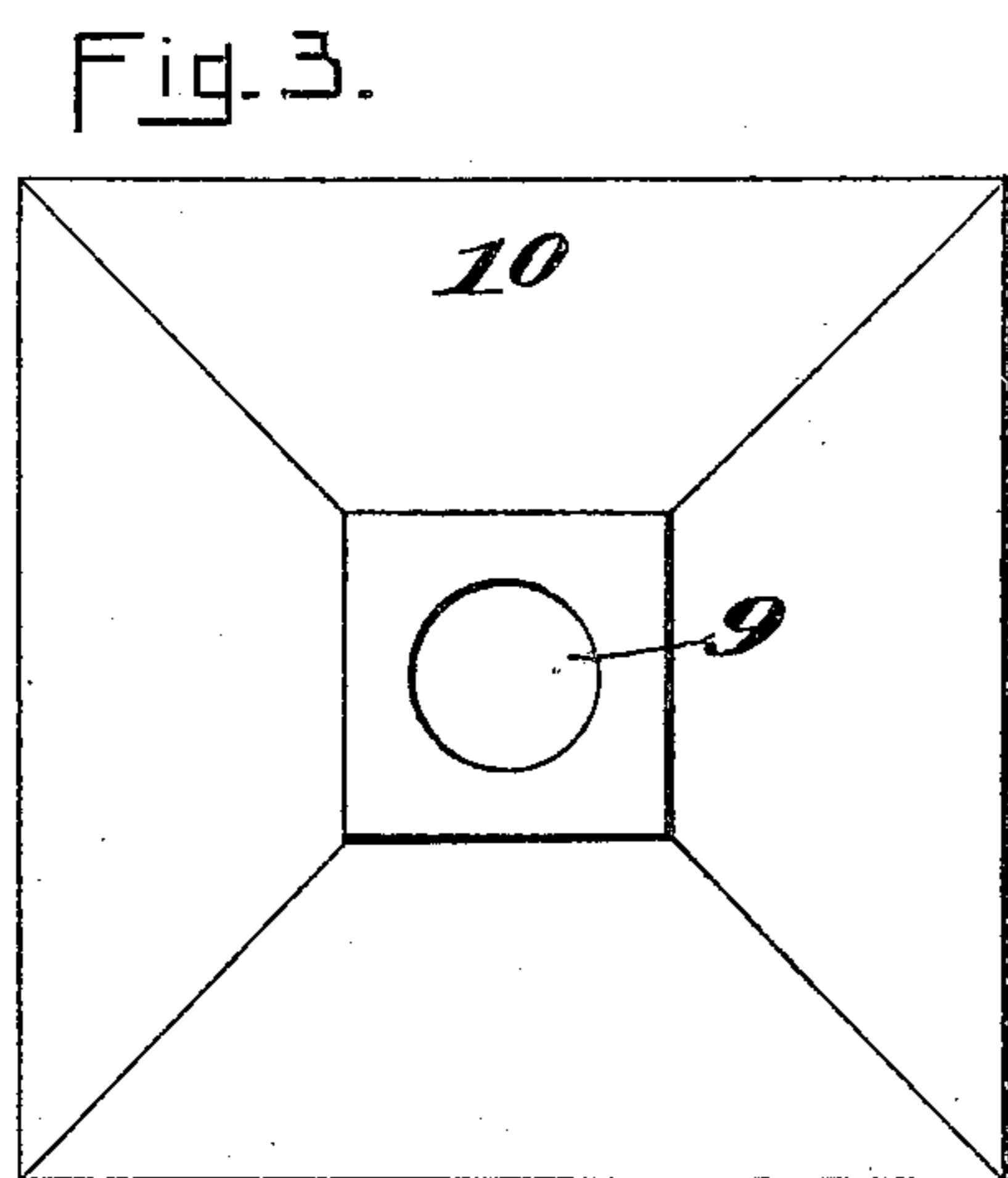
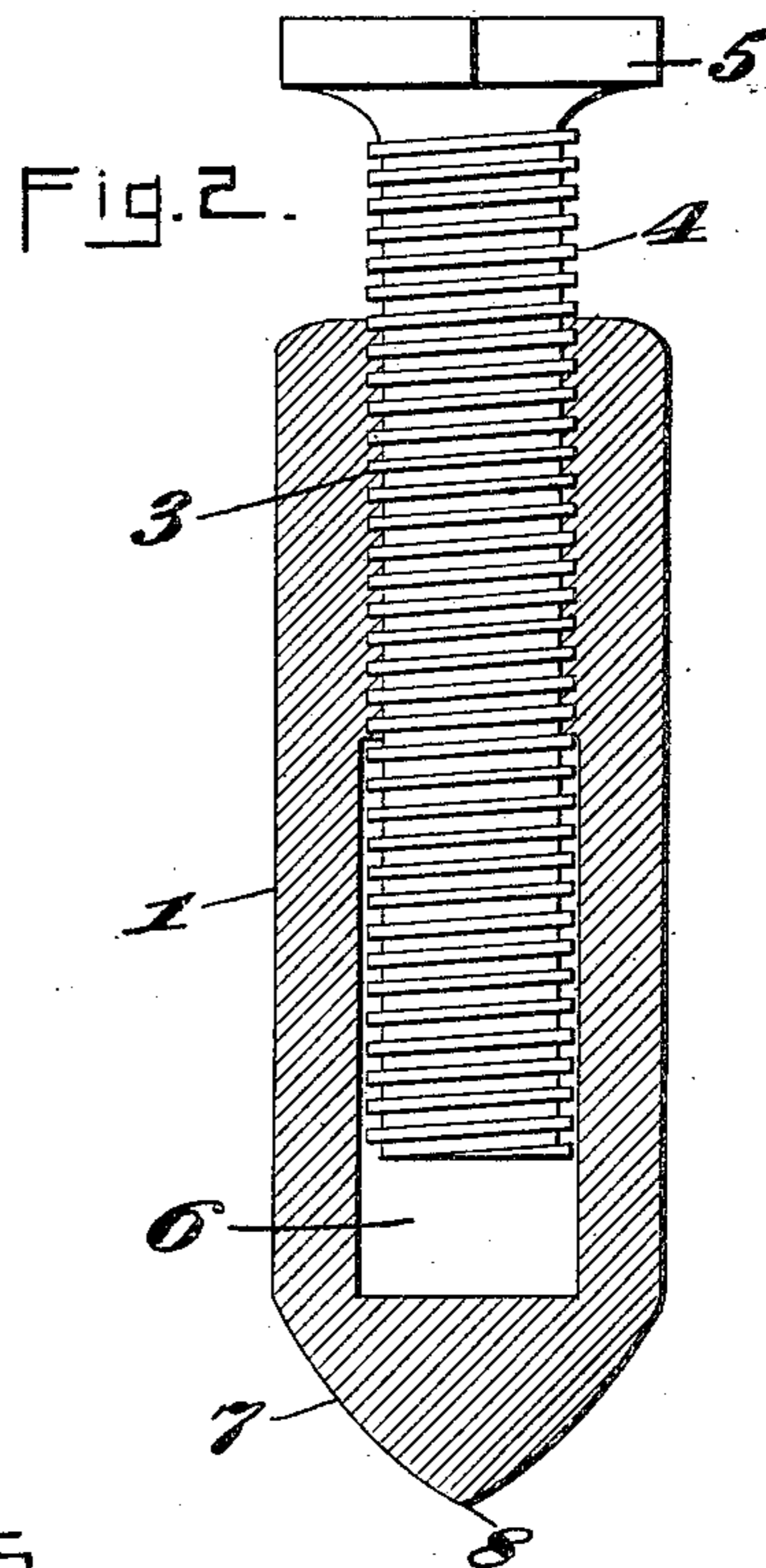
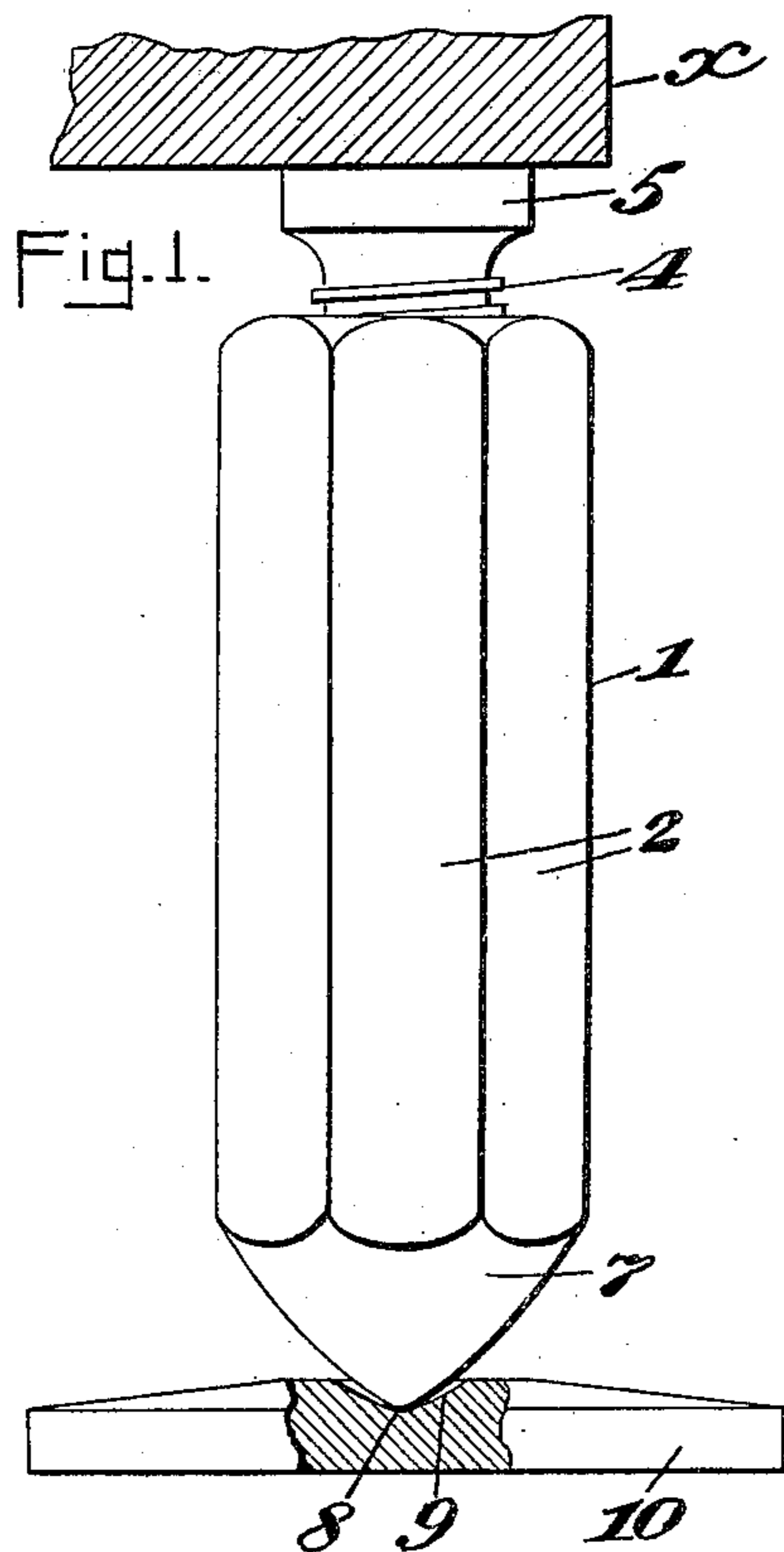
No. 821,840.

PATENTED MAY 29, 1906.

W. A. STORY & W. A. HALL.

LIFTING JACK.

APPLICATION FILED JAN. 2, 1906.



Witnesses
Homer Bradford.
William Schuchardt

Inventors:
Willard A. Story and
William A. Hall,
by John Elias Jones
Attorney.

UNITED STATES PATENT OFFICE.

WILLARD A. STORY AND WILLIAM A. HALL, OF CHILLICOTHE, OHIO.

LIFTING-JACK.

No. 821,840.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed January 2, 1906. Serial No. 294,172.

To all whom it may concern:

Be it known that we, WILLARD A. STORY and WILLIAM A. HALL, citizens of the United States of America, and residents of Chillicothe, in the county of Ross and State of Ohio, have jointly invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to certain improvements in lifting-jacks, and more particularly in that class of screw-jacks which are capable of employment for lifting great weights; and the object of the invention is to provide a device of this character of a simple and inexpensive nature and of a compact, strong, and durable structure which shall be capable of convenient use and wherein great lifting power is combined with a minimum liability of breakage.

The invention consists in certain novel features of the construction and combinations and arrangements of the several parts of the improved lifting-jack whereby certain important advantages are attained and the device is rendered simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate the invention, Figure 1 is a side elevation, partly in section, showing a lifting-jack constructed according to our invention and in use beneath a load. Fig. 2 is an axial section taken vertically through the improved jack, the parts of the jack being, however, adjusted to a position different from that shown in Fig. 1. Fig. 3 is a plan view showing the step or base plate of the jack detached. Fig. 4 is a plan view of the barrel or body portion and lifting-screw of the improved jack; and Fig. 5 is a side elevation similar to Fig. 1, but illustrating a modified construction of the improved jack which will be hereinafter referred to.

Referring first to Figs. 1 to 4, 1 represents the barrel or body portion of the improved lifting-jack, herein shown as formed from metal in elongated shape, with an octagonal cross-section, whereby flattened perpendicular faces 2 2 at angles to each other are produced upon its sides, so as to adapt said bar-

rel or body portion to be engaged by the forks or jaws of a wrench or lever of a well-known kind, by means of which said barrel or body portion may be rotated by the operator in using the improved jack.

The barrel or body portion 1 is formed with an axial bore or hollow extended part way through it and opening at the upper end of said barrel or body portion, but being solid and closed at the lower end thereof. At said upper end of the barrel or body portion the said bore is formed with an internal screw-thread, as shown at 3, and with said screw-threaded upper part of the bore is engaged the screw-threaded shank or body 4 of the lifting-screw, the upper end of which has a head or jaw 5, provided with a roughened surface, as shown in Fig. 4, for engagement beneath a load to be lifted, as indicated at *x* in Fig. 1.

The lower end of the lifting-screw is designed to pass down within the bore of the barrel or body portion 1 as the same is turned, and said bore is made of a length to receive the entire extent of the screw-threaded shank 3 of said lifting-screw, and in order to reduce friction between the parts to a minimum the lower end of the hollow in said barrel or body portion 1 is counterbored to a larger diameter, as shown at 6, so that there shall be no friction of the threaded shank of the screw upon the walls of the barrel or body portion at that point.

The closed lower end of the barrel or body portion is made tapered or conical, as seen at 7, and terminates in a solid rounded point 8, aligned with the axis of said barrel and of the feed-screw engaged therewith, and said solid rounded point or extremity 8 of the barrel or body portion is designed for engagement in a step-like recess or depression 9, produced centrally in the upper surface of a step or base-plate 10 and laterally enlarged, so that while the said pointed lower end 8 of the barrel is prevented from slipping laterally when rested in said depression or recess 9 the sides of the recess or depression are still out of contact with the surfaces of the tapered end of the barrel, whereby friction between the parts when the barrel or body portion is rotated is reduced as much as possible.

The step or base-plate 10 is made with a

flattened under surface, designed to be rested upon the ground or upon timbers or other supporting means, and in the use of the improved lifting-jack, the screw-shank 4 having
 5 been turned down so as to be housed completely or to a sufficient extent within the bore of the barrel, the solid tip or pointed extremity of said barrel is rested in the recess or depression 9 of the step or base-plate,
 10 while the head of the lifting-screw is engaged beneath or against the load to be lifted or moved, as indicated at x in Fig. 1. The barrel or body portion 1 may then be turned by means of the forked wrench or lever in a well-
 15 known way, causing the threaded shank 4 of the feed-screw to pass out from the screw-threaded bore of said barrel or body portion, so that the load is lifted or moved, as will be readily understood.

20 By our improved construction it will be seen that there is comparatively little liability of breakage of the parts of the jack, since the major portion of the stress in operation is imposed upon the barrel or body portion 1
 25 instead of on the lifting-screw, as is the case in jacks of ordinary construction. It will also be understood that great lifting power is attainable by the use of our improved jack, since very little friction attends its operation
 30 and practically the entire strength of the operator is expended in power alone, which by the intermediation of the screw is greatly augmented. The improved jack is, further,
 35 may be adjusted to a horizontal or inclined position without detracting from its advantages and convenience.

Where desirable the step or base-plate 10 may be dispensed with, and when the jack is
 40 employed for lifting light loads or for track-work, where it may be rested upon cross-ties or other sufficiently-solid support, said plate may be dispensed with; but where there is any disposition for the solid pointed lower
 45 end of the body portion or barrel to sink into its support, as in the case of lifting great loads or working upon soft ground, said step or base-plate is necessary for use. From the above description of our improvements it
 50 will be apparent that the lifting-jack constructed according to our invention is of an extremely simple and inexpensive nature and is capable of very convenient use without liability of breakage or undue loss of
 55 power through friction, and it will also be obvious from the above description that the device is susceptible of considerable modification without material departure from the principles and spirit of the invention, and
 60 for this reason we do not desire to be understood as limiting ourselves to the precise form and arrangement of the several parts

as herein set forth in carrying out our invention in practice. For example, in certain cases the construction shown in Fig. 5 may
 65 be used with good results. In this form of the jack the body portion 1^a has its bore extended entirely through it, its upper end having, for example, a right-hand screw-thread to receive and engage the corresponding
 70 screw-thread upon the stem of the main lifting-screw 4, the head 5 of which supports the weight x . The lower end of said bore in the barrel or body portion 1^a is provided with an
 75 opposite or left-hand screw-thread to receive the corresponding screw-thread upon the stem 11 of an auxiliary or lower lifting-screw, which has an integral base 12 to rest upon a supporting-surface. When the barrel is
 80 turned by means of a wrench or forked lever, the reverse screw-threads of the barrel and main and auxiliary lifting-screws cause a rapid elevation or lowering of the load, so that much more rapid work may be accom-
 85 plished than can be attained by the jack shown in the preceding views. This form of jack is, however, best suited for use where the loads to be shifted are comparatively
 90 light, since increased power is required for the increased speed attained by the employment of the reverse screw-threads.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A lifting-jack comprising a body por-
 95 tion of polygonal cross-section and adapted to turn and provided with a screw-threaded bore, means, at one end of the body portion to engage a support and a lifting-screw en-
 100 gaged in the threaded bore of the body portion and provided with a head to engage a load to be shifted.

2. A lifting-jack comprising a rotatory body portion provided with an axial bore, the
 105 latter being open at its upper end only and provided with screw-threads part way down the body portion and closed at the lower opposite end of said body portion, said lower
 110 closed end of the body portion being tapered to a central bearing-tip or solid conical point alined with the axis of the body portion and a non-rotatory lifting-screw threaded for en-
 115 gagement with the threaded portion of the bore of the body portion and having a head to engage a load to be shifted.

3. A lifting-jack comprising a body por-
 120 tion adapted to turn and provided with an axial bore open at its upper end only and provided with screw-threads part way down the body portion from said upper end and
 closed at the lower, opposite end of said body portion, said lower closed end of the body portion being tapered to a solid central tip or conical point alined with the axis of the body

portion, a base-plate engageable with a support and having a central recess or niche to receive the closed tapered tip or conical point of the body portion and a non-rotatory
5 lifting-screw threaded for engagement with the threaded bore of the body portion and provided with a head to engage a load to be shifted.

Signed at Chillicothe, Ohio, this 29th day of December, 1905.

WILLARD A. STORY.
WILLIAM A. HALL.

Witnesses:

WALTER W. BOULGER,
JAMES I. BOULGER.