

H. J. MORGAN.  
DRAFTING COMPASSES.

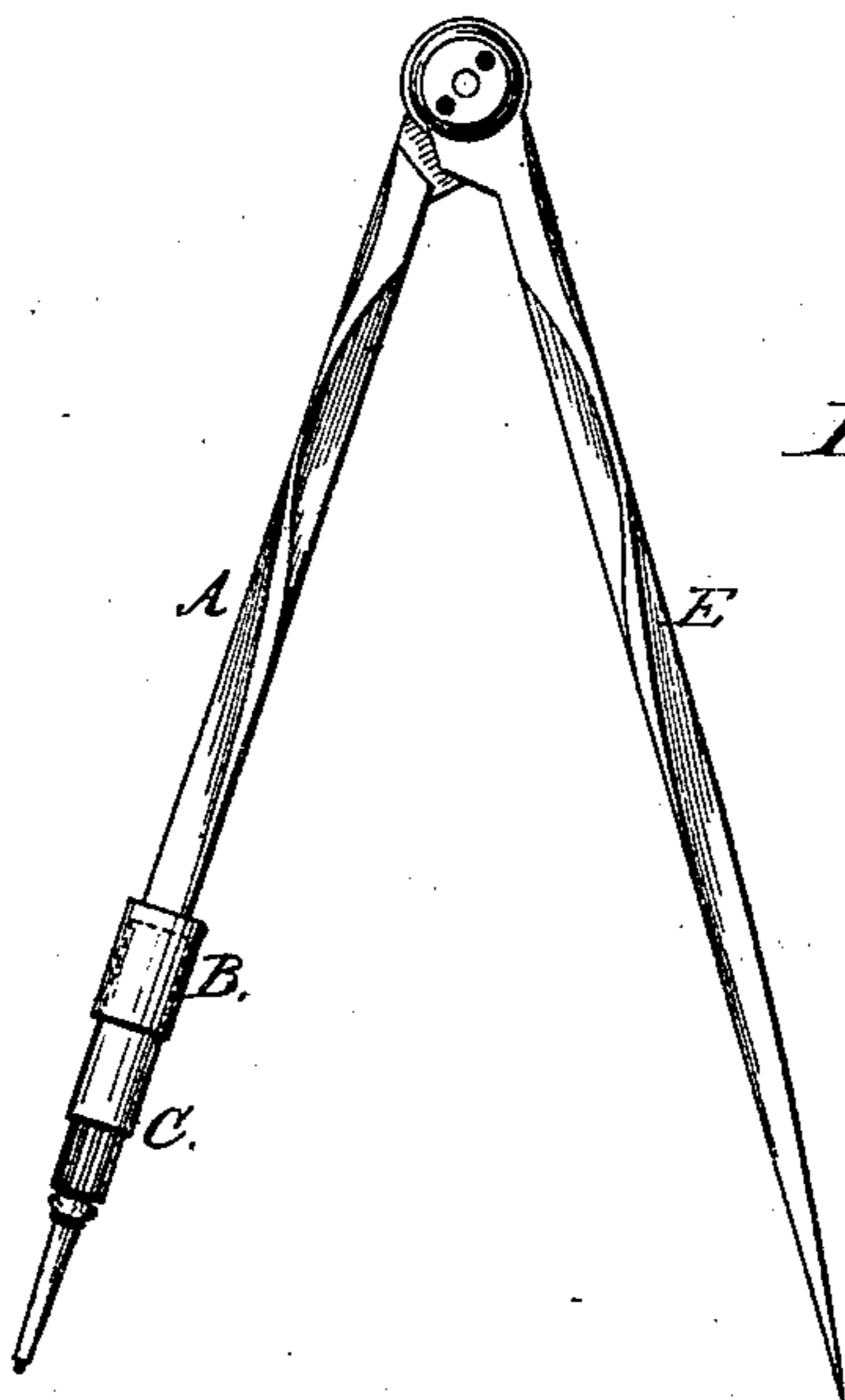
No. 180,150.

Patented July 25, 1876.

*Fig. 2.*



*Fig. 1.*



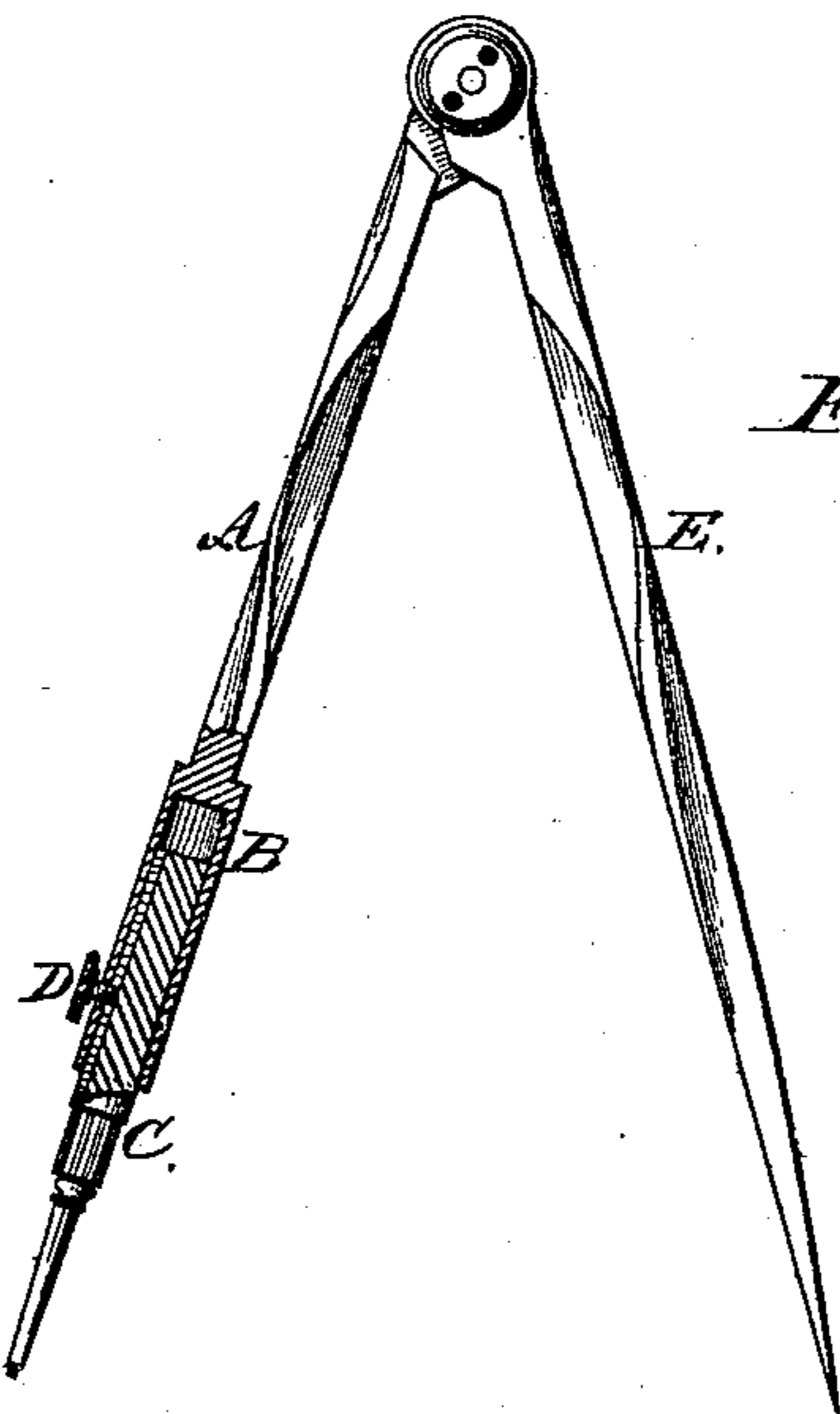
*Fig. 5.*



*Fig. 4.*



*Fig. 3.*



Witnesses:

*C. V. Price*  
*James H. Mandeville*

Inventor:

*Henry J. Morgan*  
*By Thos. Le. Folger, Att'y*

# UNITED STATES PATENT OFFICE.

HENRY J. MORGAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN DRAFTING-COMPASSES.

Specification forming part of Letters Patent No. **180,150**, dated July 25, 1876; application filed January 4, 1876.

*To all whom it may concern:*

Be it known that I, HENRY J. MORGAN, of Washington, District of Columbia, have invented certain new and useful Improvements in Drafting-Compasses; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a pair of compasses embodying my invention in its simplest form. Fig. 2 shows the pencil-point detached. Fig. 3 is a side elevation of a pair of compasses, with a portion of the socket removed, to show the adaptation of the pencil-point when made adjustable by means of a set-screw. Fig. 4 shows the pencil-point provided with a spline. Fig. 5 shows the pencil-point with an angular shank, and fixed in the socket.

The object of my invention is to produce an improvement in that class of drafting-compasses to one leg of which a pencil is applied for striking circles, arcs, &c.; and it consists in combining, with such a pair of compasses a pencil-point with a feeding-piston adapted to drive a movable lead, and otherwise of a similar construction to the points commonly employed in pocket pencil-cases but never before, so far as is known, used in this combination.

Compasses with pencil attachments, as hitherto constructed, involve a considerable expenditure of time and trouble for the frequent cutting down, sharpening, and fitting with a knife to the receiving-socket the bit of wood-incased pencil invariably used, and when so prepared the pencil is at best but clumsily supported, and the point so much exposed as to be frequently broken.

By my new combination of devices the com-

passes are at once invested with all the advantages which belong to the pocket-pencil—viz., a more secure setting of the point within the socket, and a ready and convenient adjustment of the same, the nicer adjustment effected by gradually turning out the lead as it becomes shortened by use, and its more secure protection from breakage, both when in and out of use.

The socket B upon the leg A, as is usual in compasses of this class, is made, preferably, of considerable depth, and provided with a set-screw, D, as shown in Fig. 3, and the pencil-point is formed with an elongated stock, provided with a spline, c, as shown in Fig. 4, for the more secure setting of the latter within the former.

When so constructed, these points, provided with leads of different shades of color and varying degrees of hardness, may be readily exchanged or applied to different compasses, having the solid pointed leg E of a greater or less length.

A simpler modification, but one not so efficient, is exhibited in Fig. 5, where the pencil-point is provided merely with an angular shank, to enter a socket of corresponding form.

I claim as my invention—

The combination, with the socketed leg of a pair of drafting-compasses, substantially as shown, of the adjustable pencil-point C, adapted to carry and adjust a removable lead, when said point C is constructed and arranged to operate substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY J. MORGAN.

Witnesses:

THOS. C. FOLGER,  
JAMES H. MANDEVILLE.